

6-16

(4)

The name ~~etc.~~ of
Clarkton etc., S.W. of
Potsdam 3 mi. shows
a compact reddish brown
sandstone that makes
a fine building stone.
Over the more massive
layers there are several
bands of rock in the upper
gray made up of cross-
bedded layers that split
out into very good
flagging. The drift
varies in the various
exposures outcrops but
is chiefly loamy soil.
The geological interest
is in the name, and in
the excellent quality
of the building stones.

Chazy-Cameron

Easton.

Wash Co
NY

Also - Hooker
Mrs Anthony.

9-15-67.

• Section of Colafene - Chazy
d - west side of lower
hill. Below road to Mr.
J. Hathaway's grany &
farm -

Calcareum

1. Gray Calcifer ad - 43 - in
high - 23 c,
80, N. 432
2. Dark calcifer, compact.
- having with calciferous
grains fine granular
material passing below
Calcifer. Age - 27 - m
It is just below -
3. Between the above.
see collection
4. Calcifer ad - decom-
posing, talc added it
and the sand
varying in proportion
of sand & lime. 240 - n
360-00

Chozy.

4. The Chozy l- is much like that of no. 2. of the Culverian. The layers are massive. The only fossil noticed was Spirorbis fabulosa.

1. None colored compact l- in massive layers alternating with layers 10[±] to 16[±] thick. 92-0

This section is essentially of the same type as that in east Whitwell near the N & R. R. track. ~~but~~ ~~the Bald Knob~~ ~~was older~~
the latter is much changed by
The Bald Knob & Smith
Boring sections are of course
the same horizon but they
are very much altered.

by the disturbance to
compensate accompanying
the fall, twice against
which they abut -

Grenton On the following
page a note on the Grenton
terrace is added -

10-10-87.

At the Friends meeting
Have about $\frac{1}{2}$ " ⁱⁿ _{or} of
3. Hotham - s. grayish
fusil seen in thin bedded
blue + gray limestone. This
one interbedded in gray
so overgrown d-

18 species of fusil
with more recognized.
(see collection -)

The strike of the d -
comes it to the east
of the Chazy in the section
but there is not any
connection the a meadow
separating the two exposures.

The highest rock in the
section is the Chazy
as far as determined.

M.C. 9/5/87.

• a little north of the station of Easton on the L & I. R.R. a quarry has been opened by the P.R. over to the station track up over the hill to the west, the old 8.0 m dip changing to vertical to the top to No. 2. It appears to dip in the limestone near the fault line.

Middle Cambrian fossils occur throughout the dip.
(See collection.)
The l. is the most massive bedded I have seen in the Cambrian. Many layers are overgrown & thin calcs treated to a reddish sandy rock by oxidation!

42
210

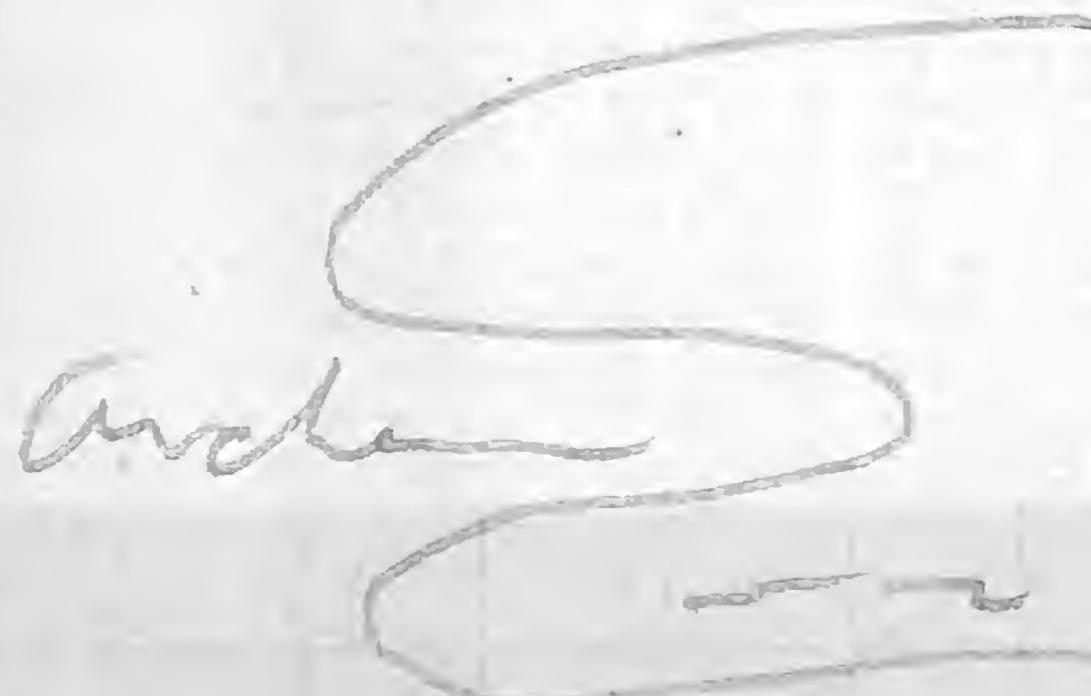
11/1/86.

With Prof. W.B. Dugay it
examined south slope
of stirring Mt - Dutcher
Co. N.Y.

Watzite St. N. 45° W.
D. 10. S. W.

Found Georgia fossils
in loose worn & just
beyond Prof. D. found
the ledge. Crossed the
sandstones to the Arkon.
(a bedded greenish layer
standing new vertical
St. N + S. with 80° W.)

Gave instance to the
~~Robert~~ Arkon Sandstone



Archean

75 to 100 feet of
massive bedded
sd - essentially
the character of the
Potsdam when a
a slightly calcareous
sd, is reached carrying
Arenellus as ophioids &
a species of *Canarella* -
?

25 to 30 ft of some sd,
& then a l - carrying
Hyolithella mississippiensis.

Fine grained calciferous
sd, ~~as~~ apparently
this is overlaid by
a shaly yellowish l. &
then a reddish brown
compact slate just
north of Stassington station.
A synclinal being
formed by the faulting
against the Hudson &
Alum shales on the

east Brook R.R.
Ridge

10-2-86

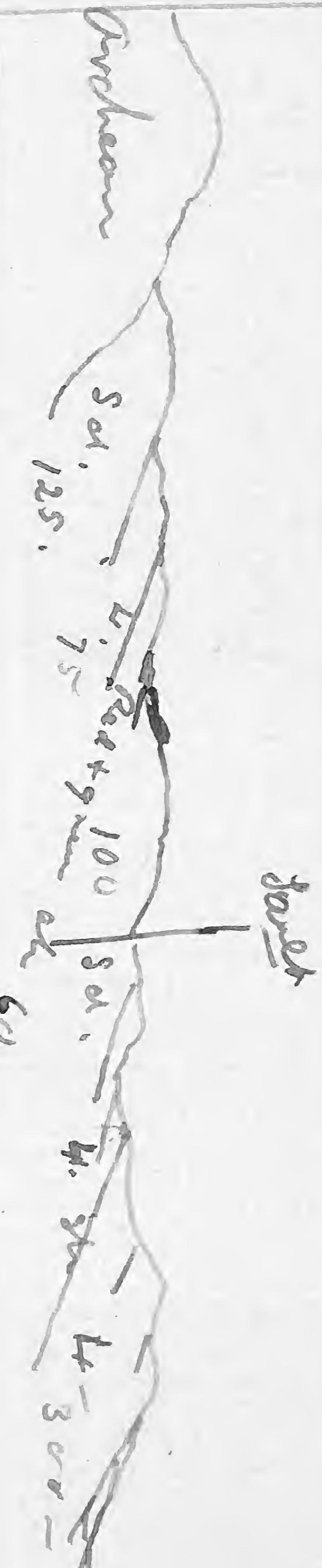
Reunited rection from
Sd - eastward.

2) The light colored
arenaceous l^{ayer} in the
quartzite is well
sharpened & is extended
if not fault occurs. 75 ft

3) Reddish brown arg. +
sil-shale passing
into greenish stuff
sil shale 60.

4. Light arenaceous
l^{ayer} with dark
bands 100

a fault lies here
cuts the section
bring the ~~sand~~
down against the l-



Mr. Stearns' rocks

Genl 1st Dist. M.

h. 423

Footnote,

h. 436

Dawson, J.W.

Library of On Canadian Examples of Supposed
Fossil Algae.- Nature, vol. xxxiv, p. 514,
Sept. 23d, 1886.

(A good paper.- C.D.W.)

S.E. if the second line
of sand - the ^{upper} - is thicker
it reaches over 300 feet

11-3-86.

W.E. of Mattawan village
at the N.W. slope of
Fishkill Mountain the
Archean is seen along the
base of the mountain &
then crossing the G.
Wolcott's farm a ledge
of massive bedded
slightly ferruginous ^{compact} rock
slopes from the mountain
with a dip of 50° N.W.
strike $N70^{\circ}80' E.$

At an old quarry
americid borings were
abundant in several of
the layers & trails on the
surface were observed.

Coarse siliceous l -
occurs to the N.W. and
then a narrow belt
of Archean with red
& greenish shale in

connects with the
common type of shale
of the Hudson River
formation. Argil-
shale stained with
iron & contained small
lenticular masses of
overbedded rock -

The bed bed to green
shale is essentially
a repetition of the
thinner No section &
unless there is paleontologic
proof of the age of
the rocks in that section
above the quartzitic sand
& first limestone I
should place them
in the Hudson River
formation.

10-2886.

With Prof. W. B. Dwight
examined the Potsdam
limestone south of
Poughkeepsie, discarded
by him.

The l's are arenaceous
& cherty & usually & very
very much so lithology
appearance. None of the
outcrops observed were
the underlying strata
seen. The Potsdam
appears to pass to the
Calcareous & that to the
Grenton as all occur
within the same region.

Prof. D - has accomplished
so very difficult work &
deserves great credit
for the good results obtained.

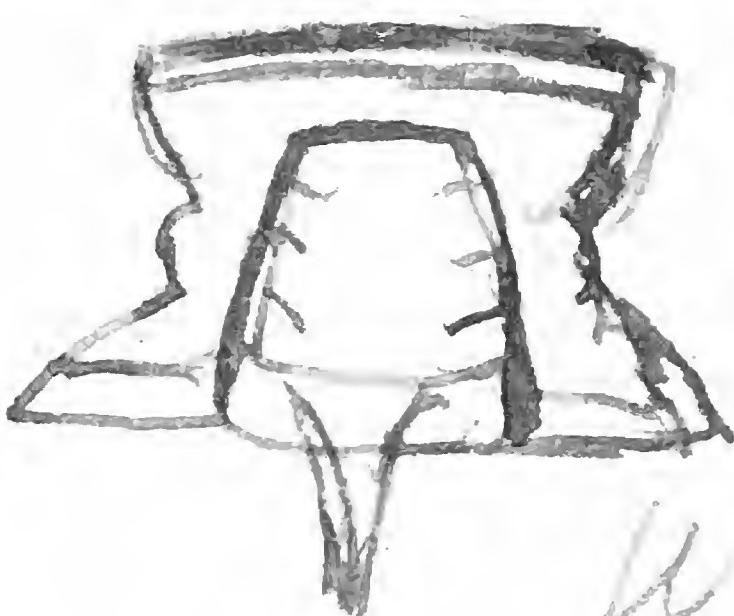
Potsdam fossils of
Dwight's Abby. Collection
Prof. Wm B. Dwight

At Vanicks road
of Vassar College
a calciferous shell gave
Pty - Sonatogensis -
" Calcararia " and
" - accuminata " in
abundance -

Pty - Sonatogensis
shows both the smooth &
furnished glabella & also
very large heads for
the species -

Pty - Calcaria gives
large heads & a wide
range in size - A long
slender thick spine
may belong to another
species

Platy-erica - Name proposed
by Prof W. B. D. which
like P.



of the Wisconsin
Potsdam.

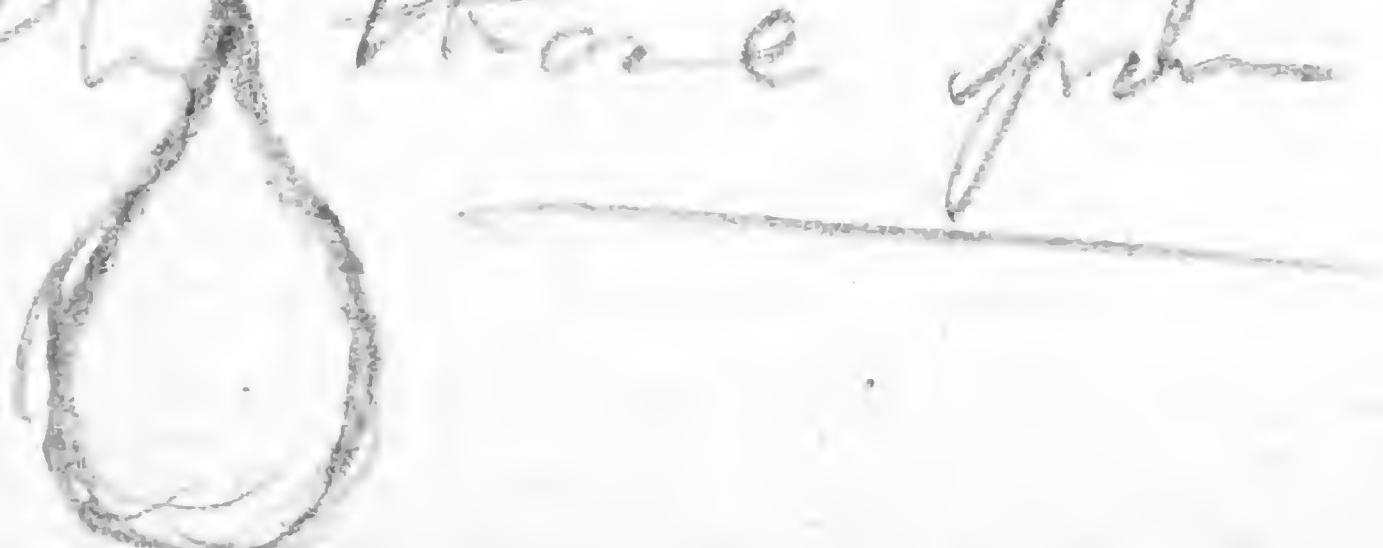
Platy eras?



more ~~stra~~ parabolic-like
than Platy eras - "
Bell-shaped" "

Miller's form Po Rekia

singlefringed rim forms,
think there is little if
any doubt of the perfect
identity of Specimen
from Miller's farm
with those from Wisconsin



The G. acuminata
appears to be the same
as the G. punctiformis

Large dark Abalatta
Labeled (G) prima

Doubtfully prima but
may be old ^{slaggets} shells

Lingula p. minima
A small OO shell such
as the young of G. acuminata
might give Same specimen

10-29-26.

Prof. Dr's Collection -

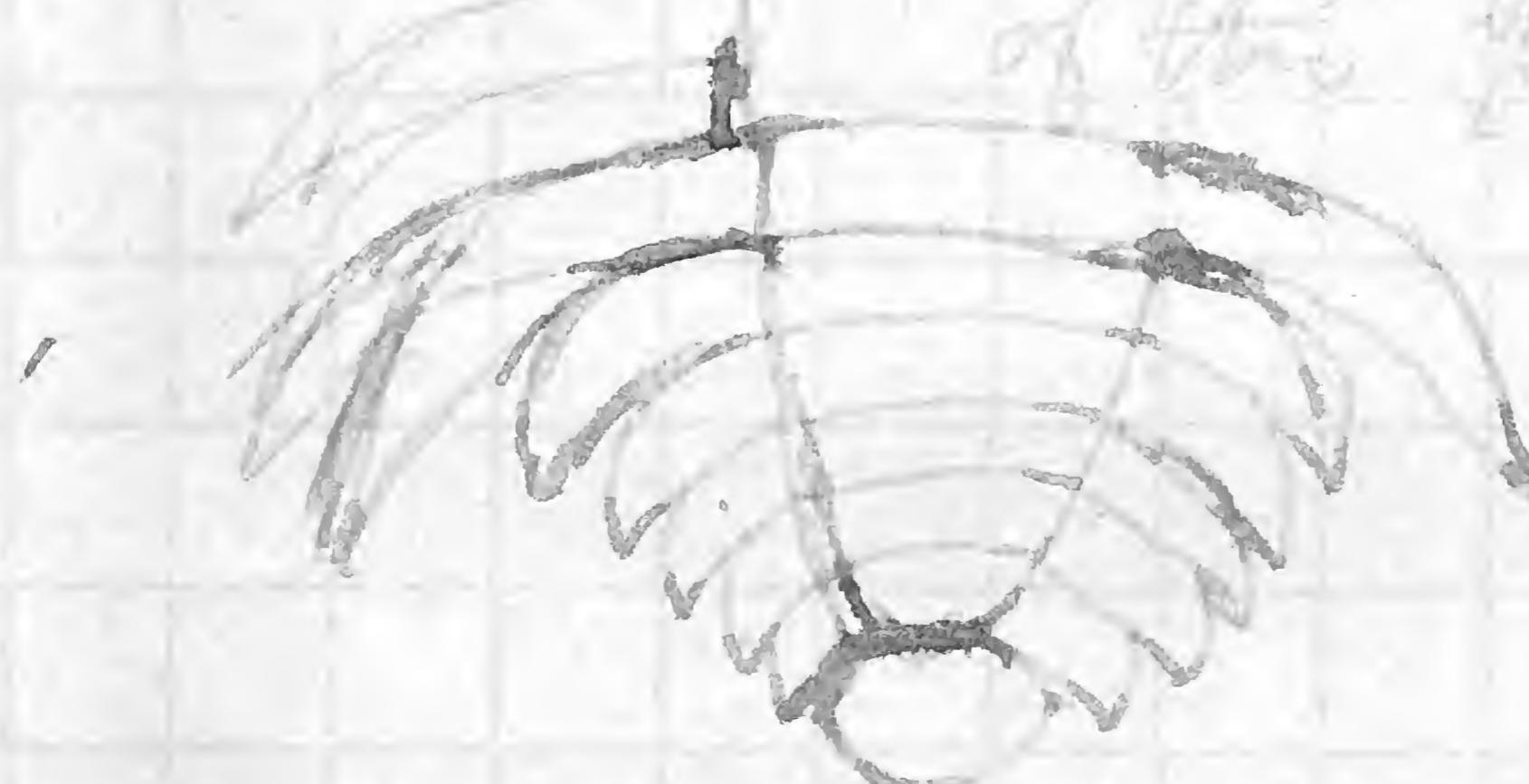
Oryx - specimens - It also
occurs in great abundance
on Smiley's farm.
Heads & pale cheeks &
a few tails.

F. Barnhouse

10-20-87

Note on *Meselina* & asaphids

To day I found out the
typical solenitid difference
of this species which
allows it to belong to a
genus distinct from
Meselina. The pygidium
is that of *Powelliidae*
the only difference is
Powelliidae is off in the
configuration of the last
two segments.
The body has 8 seg-
ments & the pygidium is

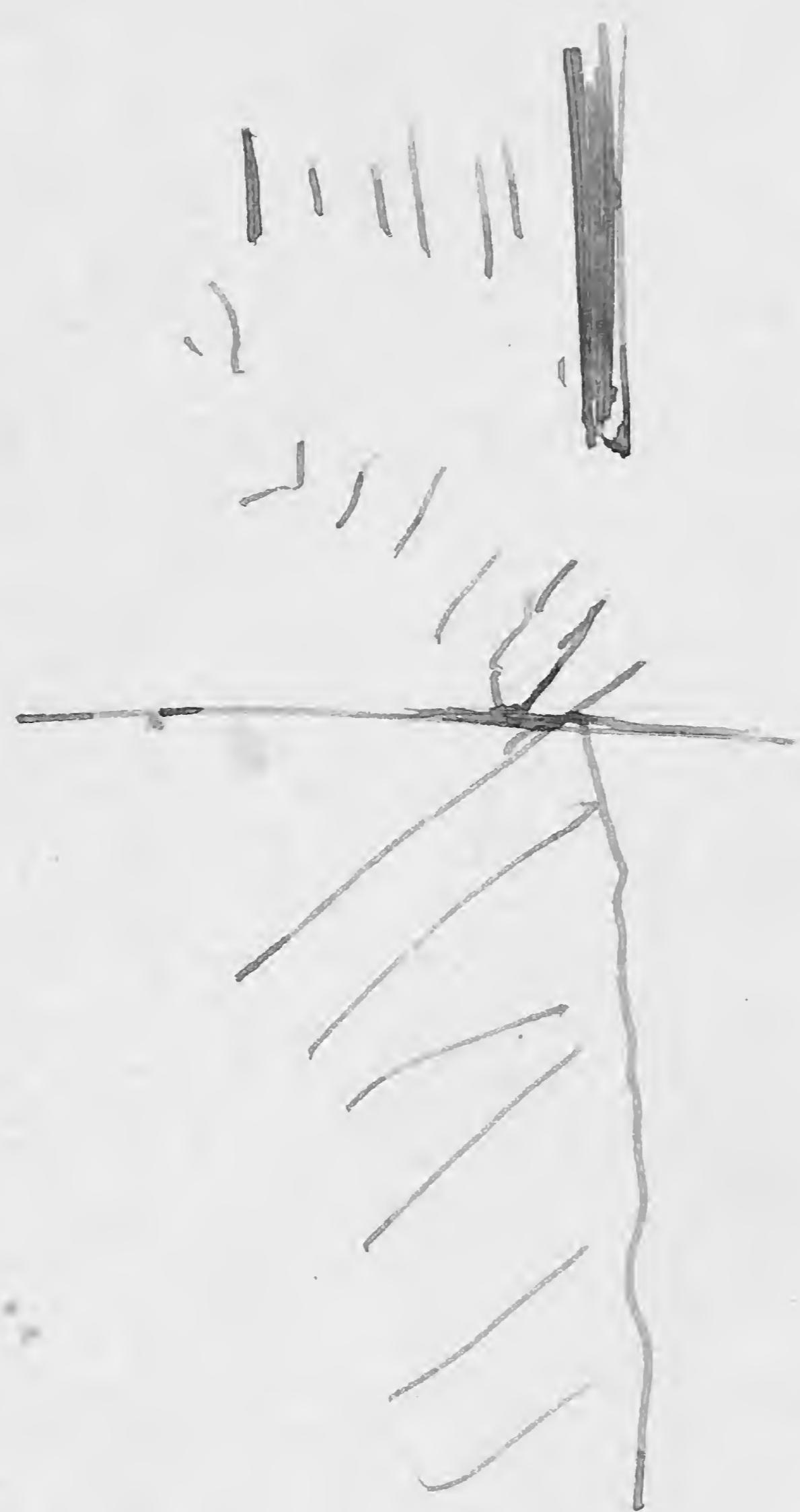


It is an upright form
of the Mesonace
the mountain. It suggests a
monadnock from the tree
Pawnee side -

Amenclia asaphoides (2)

Off mile to the north
the same band was
traced to another station
20 feet east & the
same character of
limestone & to the
west about you find
lower in the section
another band of 20
to 30 feet was observed
that contained the
same fossils -

Some ammonites
were seen about $\frac{1}{4}$
~~half~~ mile west of
the limestone.
The distance across the
strike is about 5 miles
from Reids to Jeffs -



5-12-88

1

Stockport N.G.

With S.W. end of arched
section of Georgian
group from near Stockport
Chapel Hill at base down
of Kinderhook creek to
Upper dam at Ewbank
Hill. At the base
a great thickness of
greenish drab or angillaceous
shale (200 feet)

2. Gray limestone with shale,
limestone both even bedded
& bedded 50 ft.

3. Angillaceous light
gray shale with bedded
angillaceous layers at
intervals 80 ft.

4. Even bedded & bedded
limestone with *Atrypa*,
Hinckelia solata 200

2825

5)

(2)

Dark & grayish argillite
shale becoming blacker
toward cap rock towards
the summit. 1200.

Banded on top Java
Bell-shaped Sac Fourel
1865

Agnostis mobalis.

Copy drawing

Dec. 1881.

Fay Cambrian
~~Bathotrophus flexuosus H~~
Archasocyathellus Rensselaerius, French
Escharophora

Lingulella ciliata (Hall) L.

Iphicella bellae Billings

Abolella crenata H

Nucula & Strophomena

Glenotheca rugosa H

Hyalithelus americanus Bill
" americanus "

Microdiscus lobatus (H) Oberholser
" speciosus French

New Brunswick, St John's Co.

Microdiscus Dawsonii Howorth

Agnostis Acadicus "

Concephalites Robbi "
formosus "

matthemi "

Baileyi "

Anestes "

Quanganchicum "

Fossils of C. at base of the White Broadfoot	9
Creattoidea	ft. in
Bivalve? brach.	25
Measures concealed	5.0
Henton Limestone top of falls to 60.	
" "	10.5.
" "	17.257
Measures concealed	24.
White Plate	32.333

Fossils characteristic of shale to top of falls.
Solenites fibrosa a. S. *lycoperdon*. ~~Ptilobryozoaea~~, *Lingula quadrata*,
obliqua, *L. attenuata*, *Irenites terminalis*, *Gigia Pelopea*, *L. spec.*,
iptonica sericea, *Siphonema alternata*, *Orthis testudinaria*,
Micanya levata - *dubia*, *Nucula fastigiata*, *Dolichophorus lobatus*, *Plicatula punctifrons*, *Microciliaria gracilis* ^{m. plicatula},
Leptostasis, *Endoceras proteiforme*, *Glyptolithus striatus*,
Glyptolithus granularis, *Firsovites concentricus*, *Araphia gigas*, *C. f.*
 From top of falls to the near the base of the White

Plate at road crossing. Near top of falls, stony a
fibrosa, *S. lycoperdon*, *Lingula quadrata*, *Solenites sericea*,
Siphonema alternata, *Orthis testudinaria*, *Loculites ammonius*, *B. bilobatus*, *Glyptolithus proliferus*, *Heteromorphus eximus*, *H. lotus*, *Araphia gigas*, *A. megalos*, *C. sericea*.

Near the top of the Henton the following species
 were found.

Leydigia minuta, *P. planula*, *C. Hoffmanni*, *Tellinopsis obliqua*, *Siphonema*, *Glyptolithes*, *Araphia gigas*,
Calymene venusta.

Sect lines taken on Trenton Grav. 1875.

Bucks Quarry, Hussia, Herkimer Co. N.Y. North & South
Birdseye resting on upper stratum of the Calciferous.
exposed on side hill south of quarry. Weathered
yellowish brown at base. Fracture conchoidal,
lead colored. Surface of layers smooth with
numerous remains of fucoids ^{somewhat mixed} with calciferous.

Fossils

ft in
13. 5

Succeeding layers to quarry the characteristic
Birdseye limestone.

34.

Fossils.

Quarry thin and massive layers to base of
Blk R. limestone. Work of separation, lithologically
clear and distinct.

Fossils.

11. 4
5. 8. 9

* Blk Rivey limestone. A band of layers 2 ft
thick divided into layers 1 ft thick marks the
base. The fossils are numerous. Rock dark 2.
~~Marl~~ with concentrical fracture. In places
a black flint like rock occurs in patches of small
extent.

Fossils,

Above this band massive layers are placed
9.4ⁱⁿ thick. Numerous remains of $\frac{9.4}{in}$
orthoceratites mark the upper surface
of the two top layers. Strata above concealed
by drift. Fossils noticed in this portion.

Notes on Permian Gossels.
Feb 1880.

The form referred to Allorisma which has the two carinations running from the umbro to the posterior margin and a strongly marked anterior posteroi muscular scar is placed in the genus provisionally as it departs from the typical form of Allorisma.

Rathbone Brook, New York, Herkimer Co., N.Y.

North east to south west.

Strata dip south.

July 1903

20 to 25 feet of Bridge resting on dolomites exposed along bank of West Canada Creek. Measures concealed beneath the meadows to the foot of the hill about 60 feet of strata. 25 of elevation.

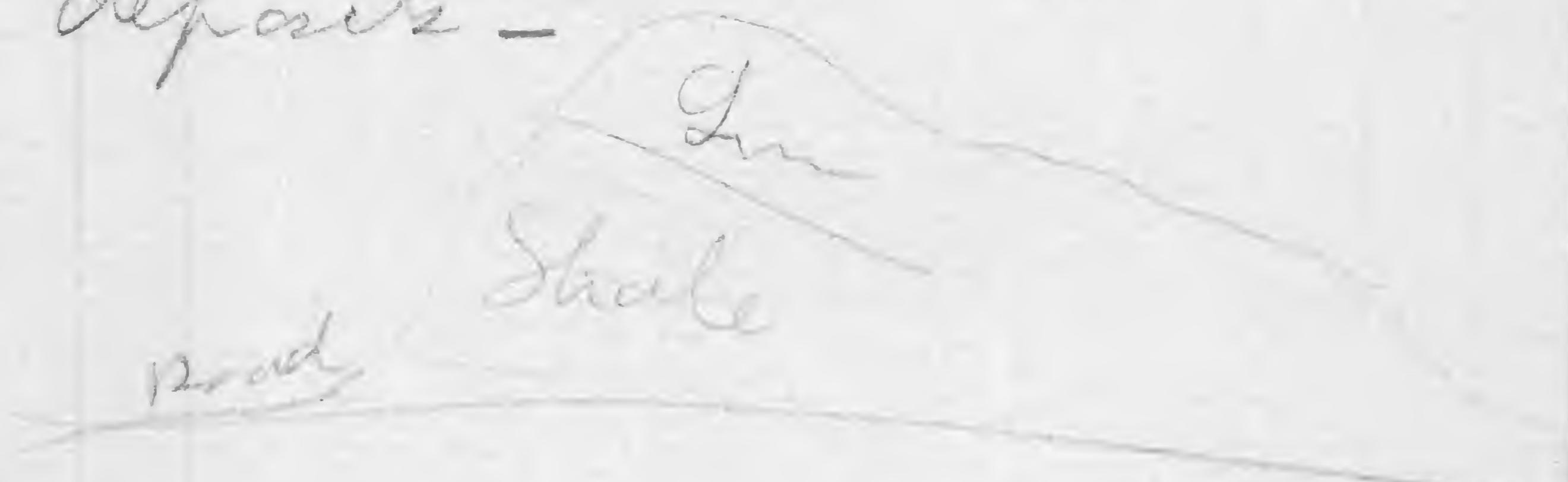
Gray & black even bedded thin layers limestone of gray, where there is a blue calcareous band. 56.5° Elevation about 60 feet of a talus. Characteristic rock of Jordan limestone exposed at Jordan Falls to bridge; running south from top of first hill, 83.4° elevation. Strata. 100 (approximate).

From division of brook above bridge 17 feet of limestone is exposed, of a light-colored, semi-shaly, unevenly bedded, alternating with layers of gray limestone 1 to 3 in thick. Measures concealed 24 feet.

Black slate, interbedded with layers of semi-calcareous blue limestone, 3 to 5 in. thick. 40 or 50 feet of slate exposed.

10-586.

About $2\frac{1}{2}$ miles east of
Whitehall - just north of
the R.R. track the angular
shales appear beneath
the Chazy limestone. Much
as before nests in limestone -
In some rays of shale
deposits -



Shales beneath Limestone
in Whitehall

July 31 - 1890

Beck an' West of Whitthall.
Below "Death Rock".

Cross bedding in green
20 feet.



Californian) 10 - 4 - 89.

Examining the California
terrace ~~d^m~~ N.W. of
Whitmore adjacent to the
Potoway River.

The cliff rises from the
river & its slope
the escarpment is about
100 ft.



The valley contains glacial
material.

To the ~~left~~ ^{Californian}
& Potoway ~~at least~~ feet of water
~~at least~~ ~~at least~~
~~to the~~ Potoway -

The right ridge can
only be formed by a
monoclinal uplift &
so with the second

Height of cliff above me
426 feet

Fossils were found
at the base of the first
cliff - one was facing
the river, in 1886. See
collection.

See note in limestone sections 1889.
4/1889.



Lectures at Abitibi
M. below Lower
back of Canal.

1)

massive bedded compact
dark steel-gray sd -
almost a gneissite

25.

2. Dark clay shale

.6"

3. Bluish-gray peccated
limestone

.6"

4. Fine grained compact
steel gray sd

1.

5. Compact arenaceous
l-

3.

6. Compact, fine gr. dark
gray sd. thickness
of 16 to 18 ft. Posterior
of coarser sandstone
& small flattened

30

Bartland 36 (2)

clay concretions occur.
Also streaks of light
colored sand in the
layers & cross bedding
is of common occurrence.
~~Interbedded~~ layers.

Annelid tracks on the
surface of some of the
layers.

(St. N. 30, E. Dip. 68° E) 14.5

5. Calciferous sd - in one
layer

2.7

6. Repetition of 4 crossing of road. 20.0

7. Thin bedded sd & clay
shale 1.3

8. Compact grayish-pink
fine gr. sd. streaked
with dark sd. & shaly
matter. Slightly calca-
reous in places. 16.6

84.9

451

149 42

Bethel 849 (3)

- 9) Dark gray calcareous layers weathering to a reddish brown sd 2.0 Animal trails borings.
- 10) Gray compact sd 1.3
- 11) Same as 9. 1.4
- 12, Hard compact gr sd - in even bedded layers - 59.8
This is typical Potsdam sd. Layers 6" to 3 ft. Top is near crown of pine road way.
- 13, Sandstones angular to 12 ft with ^{after} alternating calcareous sd layers - the calcium matter decomposing leaving streaks of reddish brown rock in the layers 149.0

(149.0⁴)

Site of 13 - N. 25° E.

Up 10° E.

The ~~light~~ light gray & compact - & with the little flattened concretions of clay & the cross bedding gives this portion of the section a striking resemblance to that of the upper 150 feet of the Kecoumee section.

Ripple marks occur on the surface of many layers of arenaceous & the calcareous strata.

30 ft
Calcareous
Beds

113.0

14. Lead cabinet
calcareous & dolomitic
with thin marl.

5.0

15. Alternating gray 267.0

41
205.

26th (5)

compact fine
grained red, reddish
coarser and finer
calcareous sandy
layers. 70.
Lingula anatina
& Ptychopora sp.

seen at the upper
layer about topsoil.

Calcareous — 93).

16. Calcareous sand - with
a massive bedded
light compact sand
at top 10 feet thick 40.

The last upper 30 feet
of 15 & all of 16 may be
regarded as the
transition beds to the
Calcareous sand above.

16

Lead colored,
mossy bedded
calcareous s.d.

230.

b. Lead colored bedded
limestone overlain
by a compact light
gray l.

20.

250.

Section at Whitehall, N.Y., below lower lock of canal.

of the characters in

Calciferous.

- | | |
|---|---------------------------|
| 18. Calciferous sandstone, with a massive bedded, light-gray,
compact sandstone at top 10 feet thick. | 40. |
| The upper thirty feet of 17 and all of 18 may be
considered as the passage beds to the Calciferous
sandstone above. | |
| 1. Lead-colored massive-bedded, calciferous sandstone, . . | 230. |
| 2. Lead-colored brecciated limestone overlain by a compact
light-gray limestone, | <u>20.</u>
<u>250.</u> |

M.C.Z.

7-14-66.

p.m.

Fossils in l-belt about ~~5~~ ²/₂ miles E of North Greenwich.

Stenoteca rugosa -

Trochilla troyensis -

Hyolithes Americana -

Commissa -

Hyalostella micarva -

Microdiscus speciosus -

" (Halls - sp.)

Solenites planus nova -

Abolella asaphoides -

9th.

Fossils in limestone (Coog)
3 mi N.W. of N. Greenwich,

Abolella -

Stenoteca rugosa -

Platycoelias -

Trochilla troyensis -

Lependitiva -

Microdiscus bilobus -

Abolella -

7/11

8-11-86.

Up the Mettawee River
from N. Granville -

Slate, shale, sandstone
mile after mile - all dipping
east

At 2 P.M., discovered
Microdictyon specimen of
the Middle Cambrian
on the hill ^{up} of the
river above ~~just~~ from
Middle Granville

Also
Hyalolithes micans.
Singulella —
Salinoplera nana.

Hip of only shale
46° &

Stk M&S.

S - 13-86

About $\frac{1}{2}$ mi N. of T. Grinnell.

The red shales apparently
are succeeded
by dark-shales, interbedded
Calcareous Shales - dark
shale-purple shales & then
a belt of shaly - 45 to 50 ft.
St N. 40° E. Dip - 40°-45° E.

Fossils - Loddia longaria,
Stenotheca rugosa, Hyolithes
Ammoceras - It occurs
Microfossils Specie, Obolella
asaphoides.

All the fossils in the
shale (limestone, by the
way) in the form of lenses
a band of quartzite, etc.
also ~~metamorphic~~ white
appears in the limestone
about 300 feet each
of the lenses

(over)

The limestone observed
in the road just north
of Robert Hall's
purple slate quarry

10-9-86

My recent observations
show the existence of a
fault line between the
red purple slates, the
red being referred to
the Silurian (Hudson River)
& the purple to the
Cambrian.

2 miles south
of N. Granville an irregularly
bedded limestone shale
zone.

Lingula? -

Micrasterias species

? n. sp.

Solenites nana

Ptychopora sp.?

H - Macans

H - American

O. osophoides -

Trochilla longensis -

Lepidostriata sp.?

~~Polypora~~ -

Alexandri -

Acervularia -

See collections — for complete
list.

The bed of L is about
100 feet thick & places
itself side by side
crossing the S. W. road
at the old ^{east} slate quarry
on the Mountain farm.

at the White Slope
quarry S. of Middle
Gambille, found
A - micans.
M - speciosus
Q. Asaphoides.

Noticed more interbedded
limestones than usual.
Altho the hecicated &
canglonate predominated.

9-30-86,

Two miles N. of N. Granville,
on east road from the
Whitball road. Corals in
l. occur, corals.

H - incisive

M - speciosa.

L - azophoides.

St. N. 10° W. sub.

Rock mostly dark and
shale

M.C.J. in Whitball (1) an
map.

Meridional specimen
Ctenellus —
Lingulae.

At this point the Chazy
l. & Conkin are separated
by about 300 feet distance

the interval being filled
in by shales of the
Carlsbad.

About $2\frac{1}{2}$ mi E.E.S. 10 \circ
from Whitethall a contact
between the Chazy & Carlsbad
may be observed or at
least within 10 feet.

M. C. M. D. S. Whitethall
gave the zone as No. 1.

M.C.M. = Recognized
Middle Cambrian fauna -
A species of *Nereites*
hypolithica - *Alcathoe*.
Usually one to two cm
more at the base may
be.

blue purple beds on
Shaw's Bayays form
alternate with green &
leptile of sandstone.

These are probably the
same belt as that worked
for slate in North Pultney
& South Costleton VT.

Middle Cambrian in
E. Whitetall

M.C.L. 10-5-86.

Crossing from Fair Haven VT into Hampton at low Hampton a band of limestone interbedded in dark shale is met with. In the limestone *Abolella* & *Solenopora* occur - A short distance west a thick band of limestone cap of longerate occurs in which fossils are abundant *Abolella* as *aphrodis* etc -
(See collection)

Also towards Whitehall found *Abolellus*, *Ptychoparia* and *Solenites* —
See Whitehall section of July.

M.L.L. in Easton
+
~~Foothills~~

South of the Battenkill
in Easton about 1 ~~m.s.n.~~
of Greenwich up ~~a long~~
hill found Piatop
tutinatus + O. asaphoides
in a dark shale slate.
To the west a great
considerable thickness
of Calc-sand occurs
as on the Reid farm
section & then the
disturbed rocks indicate

approach to the
fault line between
the Camb. & Ordovician.
+ $\frac{1}{8}$ of a mile west of the
L. & G. R.R. track.

The fossiliferous shales
are overlaid by rough
silty shales

Fauna in the green
slates of the eastern
belt.

but it may be
Hudson River Latten
work refers it to the Caukin.

In the N.E. part of the
Ferry of White Creek
a limestone bedded
in the greenish talcose
slaty schist contains
Arenellia araphodes
Solenoplera.

This is a most important
locality as it is fairly
within the Magnesian
slate of Emmons Locality
& the talcose series of
Hitchcock. The locality
corresponds in position
to that on the north
side of the Battenkill
below the mouth of
Camden Creek.

These localities & those
to the northwest of Salem

village fairly place
the great deposit of
green slates & talcose
shaly rocks up to the
base of the limestones
in the Cambrian. The
upper partings corresponding
to the Potsdam horizon
of the Adirondack &
Dutchess Co. areas.

Crossing into Vermont
& returning over the
mountain to the north road
entering White Creek the
strike of the talcose green-
ish beds is north 40° to 50°
E. & 3 mi east of Cambridge
middle Cambrian fossils occur
in gray limestones interbedded
in the green talcose shaly
rocks - The strata strike
 $N. 40^{\circ} E.$ & dip from 45° to 60°
E.

9.27.86:

Western fault line
of Canaan.

The fault that cuts thro' the western face of Bald Mt. extends to the north-east cutting thro' the next highest and facing hills near their summits & then extending along their western base of the high hills until past Argyle where it cuts back of hills between North Argyle & the Hook to the high hill on the extreme N.E. corner of the town of Argyle. It again approaches the western edge of the hilly country a mile south of North Hartford passing very close to the town.

10-15-86.

The fault line between the Camb. & Ord - on the west side of White Creek valley from Cambridge south to the Housic river passes west of the turnpike leaving a ~~the~~ small area of Ord-stota with red slate $\frac{1}{4}$ mi. N. of the old "Checkered Horse" at the " " " "
it appears others near the road & then to swing a little to the west & ^{south} to the river leaving a few highly disturbed silicas & argl-rocks to the east & to the west the green & purple slates of the Cambrian - the latter being much ~~disturbed~~ & contorted & standing at a high angle - 70° - 80°

The western side of
the Cambrian is pretty
well fixed near
Mount Cambridge but
with that it was not
practicable with the
time at hand to locate
it nearer than giving
on the map. The
greenish shaly slates of
the Cam. & those of the
~~Holderness~~^{Ornithostomus} are so much
alike that it is not
certain whence so much
of the country ^{rock} is composed
by drift & soil where
the fault lines occur.
The bay & damming high
strip of M.C. may run
up its eastern side nothing
was seen of it or far
south as Sandall's Conn.

10-1-86

The fault line between
C & S' west of Gramville,
runs N.E. to the N.W. & passes
a little w. of South
Gramville.

On the road from S to S.G.
masses of the siliceous
clay beds of the ledge
are seen dipping west
generally dip westward. The
red slates appear just
N.E. of S. Gramville &
also S.W. of Gramville.

10.2.86.

N. of Middle Gramville the
fault plane passes north to

~~East fault line of N.Y.~~ 10-11-86

The eastern side of the western Cambrian belt in passing across the Battenville from Greenwich into Jackson continues its S.S. course until past the base of J. Coulter where it swings to the south down the valley towards Coila. Its course is not closely defined or an ~~broad open~~ of drift ~~crosses~~ the south end of the valley but from the presence of Middle Cambrian fossils on the west side & the siliceous layers of the Hudson River Shale to the east it must pass very near the line drawn on the map.

10-6-56

- at Carter's Falls on the
Pultney River in the
north part of Barreton
the Canhine crosses at
the upper falls just below
the bridge + the Colby
Rickey L. crosses at
the lower falls a short
distance below.

9-28-86

South of N. Hartford
about 2 miles a great
mass of the Cambrian has
been pushed westward &
the strata swing so as
to strike N + S - The strata
a little to the east striking
N. 30° E.

North ^{Ward} ~~N of~~ ~~Hartford~~ a
similar displacement occurs
the strata dipping 8° to the
west.

These displacements show
the close proximity to
the fault & also give
it an irregular contour.

10-12-26.

Cambrian

The eastern belt of Cambrian rocks occupies most of the Township of White Creek & the eastern half of Salem & the southeastern corner of Hebron passing into Vermont all along the eastern line of the county up to Central Hebron. ~~and~~ Its western & lowest beds contain green & purple slates & a few interbedded limestones. Among Middle Cambrian fossils. Eastward from the localities given on the map nothing in the shape of a fossil was observed.

Chazy - Peter machine.

As shown in Kingsbury
foot. Am - Hartford &
Whitehall, Wash Co. N.Y.

The dolomites may be
replaced by shales and
sand in the rocks in relation
to the frontier limestone.

In Kingsbury both the
golden Chazy and
absent by wave deposition
and in the limestone
belt of Argyle & Greenfield
the evidence of the thinning
out of the limestone & the
intercalations is clear

among the limestones -

Comparing the section to the
limestones of White Creek
& Hornick ~~the~~ we find
that they are impure &
intercalated with shales
& overgrown beds. The

The lower portion ^{is fine} ~~is~~ more interbedded, in a
yellow & coralliferous limestone. In
southern White Rock a
layer of clear white
limestone is
the prominent western limit
of the marble deposits.
The limestones are
comparatively thin and
form a narrow belt. where
they pass beneath the shales.
to the eastward.

Crossing to the limestones of
Mt. Anthony a greater
thickness of b- is met with
and the marble is more
prominent in the deposit.
Among the occurrences at
Bluff limestone & Fossil
beginning in the latter.

This is representative of
the marble belt & traced
north & south the belt

(3)

thickens + the marble
deposite becomes thicker.

Altho' changed by
metamorphism the marble
was a different deposite
originally from the
accompanying & intercalated
limestones & to this it now
gives its character.

Work the above idea
out in detail

Localities of fossils
in Washington Co.,
1886. May

also distribution
of facies rocks.

10-11-86.

Just south of the Center Falls bridge on the line of Easton & Jackson a massive bedded cal-sed - occurs with thin bedded sand shales & a few layers of bluish-black limestone. St. N. 25° E. dip. 30° E.

In a gray l -
found.

H-micans

Micro-speciosus

Alexellia asaphoides

Talmenophrena -

Passed over argl & shaly shales about 1 mile west to cross roads in Jackson about 1 m s.s.w. of Battenville.

Found calgl- & bedded l- in argl-shaly rocks St. N. 25° E. with 35° E.

From the l.- obtained
• fragment of *O. osophides*
H. mirans & beads
of *Solenoplites*.

This outcrop is quite
extensive & is not
far west from the
faulds line between
the Cambrian & Hudson
River rocks.

Other outcrops of l.-
occur with W. C. F.
fossils to beyond School
House No. 2 where the
faulds line passes
south along the east
side of the road to Coila

about $1\frac{1}{2}$ mi. N. of Coila
a fine bluish-black l.-
contains a small
Abaloid shell. Put
it in the Cambrian

First ~~l~~^{Wavy} - east of
Brushy Run Dr.
West Arlington Bridge
Spotsylvania Co.
~~at~~ South of Arlington Va.

No. side of rock
St. N. 30° E. dip about 30° E.
One hundred yards made
a magnesium shale off base.
dip E. about 40°, then a
greenish argillaceous shale
& a band of calcareous
sandrock. Then to the
N. & up slope like the
green shales show ~~thin~~
~~bands~~ at intervals &
in places are calcined
& disturbed by compaction
about one of an interbedded
l - giving M.C. Bank.

Alexandria (fragments)

Solenites plenus (C. C. Moore)

North from the bank
on the road to Salem
outcrops of limestone + $1\frac{1}{2}$
miles south a number
so-called gray

Bryozoa sp?

Favosilia boyensis -

Hyolitha communis

H - Macaws.

Olivellus -

North of Salem on the
road to Hebron Congdon
limestone interbedded
in the shales.

about 6^{mi} n. of Salem
a massive bed of red
slate occurs.

St. N. 87° E. dip 40°.

9.21-86

1^{mi} W. of Shushan on the
road to Lake Lauderdale
an outcrop of ls occurs
in greenish shaly slate
fossils -

Clavellina fragilis

Hyolithella means

St. N. 209° E. dip 45°.

1 mi S. of Throckham on the
west side of the Batter Hill
at Lobbins quarry the
strike of the Shales is N + S,
pitch 60° E.

Shales purple & greenish-

Analyzing the shale a ribbon
of irregular limestone
contains a strong lyre-shaped
Middle Cambrian fauna.

See collection

9-21-86,

2 1/2 mi East of Throckham in
Congl - interbedded in
greenish platy shale found
Arenellina fragilis
Solenites

9-20-86

1 mi N.E. of Salem limestone
open quarry See mark.

Microdictyon speciosum
" *bilobus*

Alveolina -

Large shales etc

Slate at N.E. quarry at Salem
St., N. 35° E., dip 30° E.

9-22-86.

At a point on the East
line between William
Davis' place and
outcrop of Cambrian
l., occurs carrying
Byssinella *Micra*
Clavellina —

Roxbury Vermont

The most extensive
locality of middle Camb.
yet discovered.

Pain. A.M.

9-23-86

At the green slate at West Pownal & N. the ~~green~~ the
slate is N. 40° E. dip 60° E.

East of the green is a
bed of purple slate & also
& also thin close proximity
to them.

Will study the section
East - from Granville.

Crossed the township of
Granville on the road passing
from S. Granville to North
Hartford. Leaving W. Pownal
Vt. a band of red slates
is crossed often alternating
beds of greenish-purple
dark black slates & shales
until 3/4 of a mile from
the Vermonots where an
interbedded limestone zone
fragments of *Atrypella*.

• & many bits of fossils
Hyalolithellus micans etc.

Continuing west argil-
& sandy shales with
occasional interbedded calciferous
strata extend for two
miles where a limestone
occurs that is Cambrian
& contains *Abolella* —
(Same steais as mouth of John
Hulette)

About $1\frac{1}{2}$ miles to the
west another fossiliferous
l. occurs with many
Middle Cambrian fossils.
(See collections from near
John Hulette.)

Shales argil & sdy, calcifer-
ous & occasional bands
of fossiliferous l. occur
for about 3 miles west.
"middle" Cambrian
fauna were found here

• 13 $\frac{1}{2}$ miles to 2 $\frac{1}{2}$ mi. west
of Pawletts the land
locality being about 1/2
mi. east of Martin's
Baptist Church.

As far as I can
determine from this
reconnaissance no
Hudson River sh. rocks
occur between West
Pawletts & North Hartford

but it is more than
probable that they occur
east of the red slate.

9-27-86.

The massive belt of calcif.
aren. ad - on the west
side of D.W. Reid's farm
(see section) crosses the
road leading from Argyl
church to Lake Gifford
in Argyl. At the lake,
N^o. N. 30° E., dip? E

Limestone occurs in thin beds
with the Calcifer ad-

Directly S.E. of Argyl -
a high hill ()
is formed of the Calcifer
ad & infuse ll - of the
middle Cambrian. The
strike of the strata at
the point is N 45° E. &
at the spot for N 30° E.
Found fragments of
Alveolin and lenses of

• Hyalophorinaeans.

To the north east the massive bedded Calciferous ad - estuary shales outcrop ~~up~~ to for a mile or more & then disappears by the eastward curving of the fault line -

On the first east road south of N. Argyl the Chazy L - shows in the fields at crossing the road (St. N, 40° W. with 30° E.) It is massive bedded & thick bedded & flows and extends about half a mile to the N.E.

Section of MacLurea & a brachiopod are well shown on the south side of the road,

(35)

Sept 13rd/93

Front Cambridge Harbor
Co. Md.

Very well on
stream about 1/2 mi south
of Center Cambridge.

Limestone in carbonaceous
masses in shales - also
as interbedded layers.

The fossils may
not examined closely.
They are small enough
to be scattered with those
from B7 - if no distinct
Gambian species are
found.

Sept 21st 193

Found fragments of *Olivellus*
& ~~*Mylitellus*~~ *micons*.

136/93

Sept 9/93

1/2 mi N. of Eagle Bridge
R.R. Station. Warren Co. N.Y.
On south slope of hill facing
Hosack River. Crossed Wagon
Hollow.

Ulmularia.

Micromeria pulchella.
etc etc.

Going up the slope & gritty
shale table N. 20° E. 25°
E. Dip 45° - 70° W. - Beyond
Bashville bridge the dip
changes to east 40° - 60° &
the rock is a greenish &
grayish platy shale.
Just below Bashville
bridge the cleavage
is east - Dip of shale
20° west S. N. 20° E.
These beds are solid
argillitic shale.

137.

Debt 11/93

Limestone interbedded
in shales of the Hudson
Group. Graptolites of the
Normans Kill fauna occur
a little ~~below~~ ^{below} the limestone.

See fossil for species.

2^{m'} N. N. E. of Battenville,
Greenwich Division Co.
N.Y.

First discovered by
Oscar Leff.

Collected more specimens at
137. The Hudson Graptolite
occur about 25 feet below the
interbedded limestones that
carry a fauna of the Chazy
type.

138 i

Sept 12 1968

Congl. bedded limestone
in dark shales - 100 yds
S.E. of road side on hill
slope, N.E. of Willardz
Mt. just across brook from
"Hampton Hill" (Easton, Washington)
Eryolites americanus
Meridiscus punctatus
Olenellus -

This is in a narrow strip of
Cambrian that extends south
from the main mass of the
Cambrian south of Specimen
+ Middle Falls. About $\frac{1}{2}$ mile
on the west side of the road
the limestone appears in an
at least ~~thin~~ on the east slope
of the ridge east of Willardz
Mt. Across the road on the
west side about 100 yds

138. Con.

rest of the wood the Hudson
cherts occur & in associated
black shales grittites of
the Norman Hill fauna.

West of the Canham locality
the calcareous sandstones
(Gray flint) shown on the
slope of the hill

willowbrook Hudson grittites

West

Canham

Hudson
grittites

6 Cam.
- brants W + S
wagon road

west

south

Found Hudson grittites

Normans Hill fauna on the
south spur leading down
from the east side of the saddle
on the south. Also on the
south slope about 200 yds
north of the spur, road.

See map of eastern

Yellow Cambrian
Marl in
Greenwich.

a fine exposure of
the interbedded Cambi-
rian facies occurs at
Middle Falls, Greenwich,
where the Bald Hill Co
cut this, in the strike
of the shales, slates
& limestones. About
200 feet of the section
is exposed.

It is underlain by
a massive bed of
calcareous sandstone
well shown on the
north side of the road.

The geologic structure has
not been worked & cannot
well be with certainty stated

map is available. There
is considerable plication
within each formation
and complications of
cleavage & jointage.

Washington Co
dry

1891

No. 1.

June 3/91

In ravine just east of N.
Granville cemetery, Weston Co., W. Va.
Dark gray slates with flattened
annular trilob. st. N, 15° E, dip, 60° E
The slates are silicic acid
thin cherty layers occur at
irregular intervals. The
physical character and
those of Hudson formation.

On the opposite side of the
little brook (east) the shaly slates
extend for some distance on the
strike & 150 feet or more in
thickness of the section is exposed
along side the brook.

June 4/91,

No. 2.

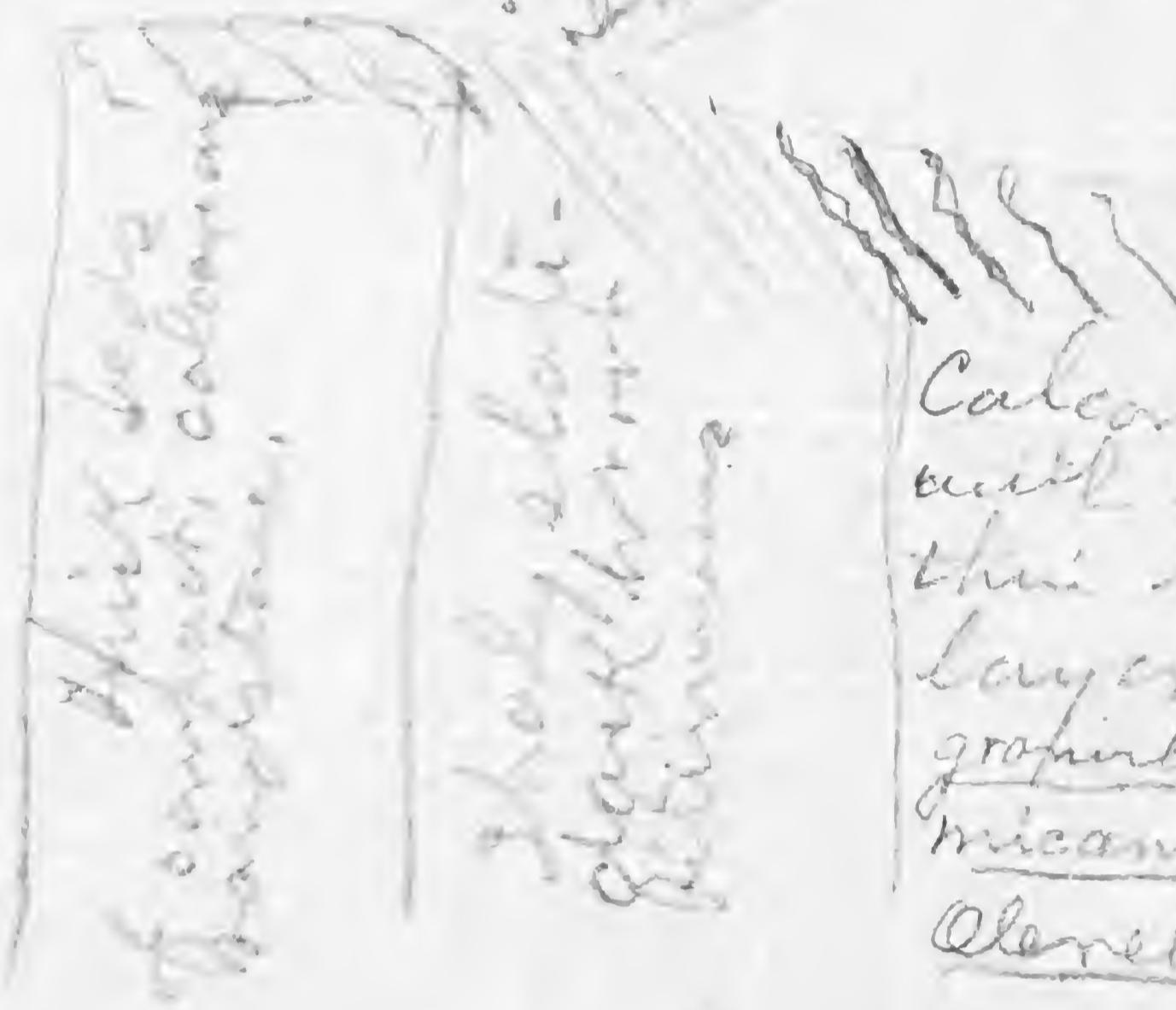
On road side ~~1/2~~^{1 1/2} m' E. of North
Granville, Weston Co. W. Va. Exposure
on South side of road east of town

2

Farmers farmhouse on east
slope of road.

Lecter looking north down
the road

St. N. 15.8
S. 20.0



Calcareous shales
with lime, tan & thin
bluish-gray
layers. Found Lingula
gracilis, Hyolithellus
micans and fragments of
Glenellus sp. fossils.

Length of exposure about 100 ft.
The fossils indicate the upper Lower
Lower Cambrian horizon - which occurs a
mile south & also on the Mettawee
river a little to the north.

No 3. In field on south side of
road 1/2 mi. East of
on road to Middle Granville June 5th
Argill-shales with calcareous
small dark flattened ^{shells} &
concretions but have fine vegetal remains,
about 30 feet or more.

3

beds. St. N. 15° E. dip 30° to
50° along the strike owing
to slight disturbance of the
beds. Bunches or concentrations
of caliche masses of calcareous
sandstone occur in the shales.

No. 4. June 5/91.

Red slate quarry on east side of road
about 300 yds south of the westward
bend of the Mettomee River 2 $\frac{1}{2}$ mi. N. of
Middle Granville, Wash Co., N.Y.

Red slate St. N 15° S. dip 35° E.
A fault with a break of 60°
E. cuts off the red beds &
brings green slates against the
red by overthrust.

The cleavage of the slate
appears to be about 3° from
the bedding as seen in large
pieces.



No. 2. June 5th. 4

On west side of road 300 yds north
of Mettonee River bridge $2\frac{1}{2}$ m^s N.
of Middle Granville. Just below
a small culvert over the north
road a little above where the
N. E. road turns off.

Dark argl-shale sh. vs 5,
dip 25° E. In the shales
found well mark grypholites
of the Normans Kill fauna.

25 feet down the little hill
the dark + green siliceous slates
dip E. 60° sh vs 5'. Red shales
occur a short distance south
on the east bank of a small
brook.

June 6/91.

No. 6. Silicic slate, brownish-black
to gray. with thin interbedded cherty layers
St. N+S. dip. 45° E. Outcrop small &
in open field a short distance north west
of the ^{end of the} road crossing the Mettawee at
N. Granville. Much more extensive
outcrop occurs in the 2d field north.

June 6/91.

No. 7. Dark argl-shale with
graptolites. St. N+S. Dip. 40° E.
See collection folder list of species.
Directly east of house J. Dodge
on crest of 2d outcrop on
ridge east of road.

Species.

No. 8.

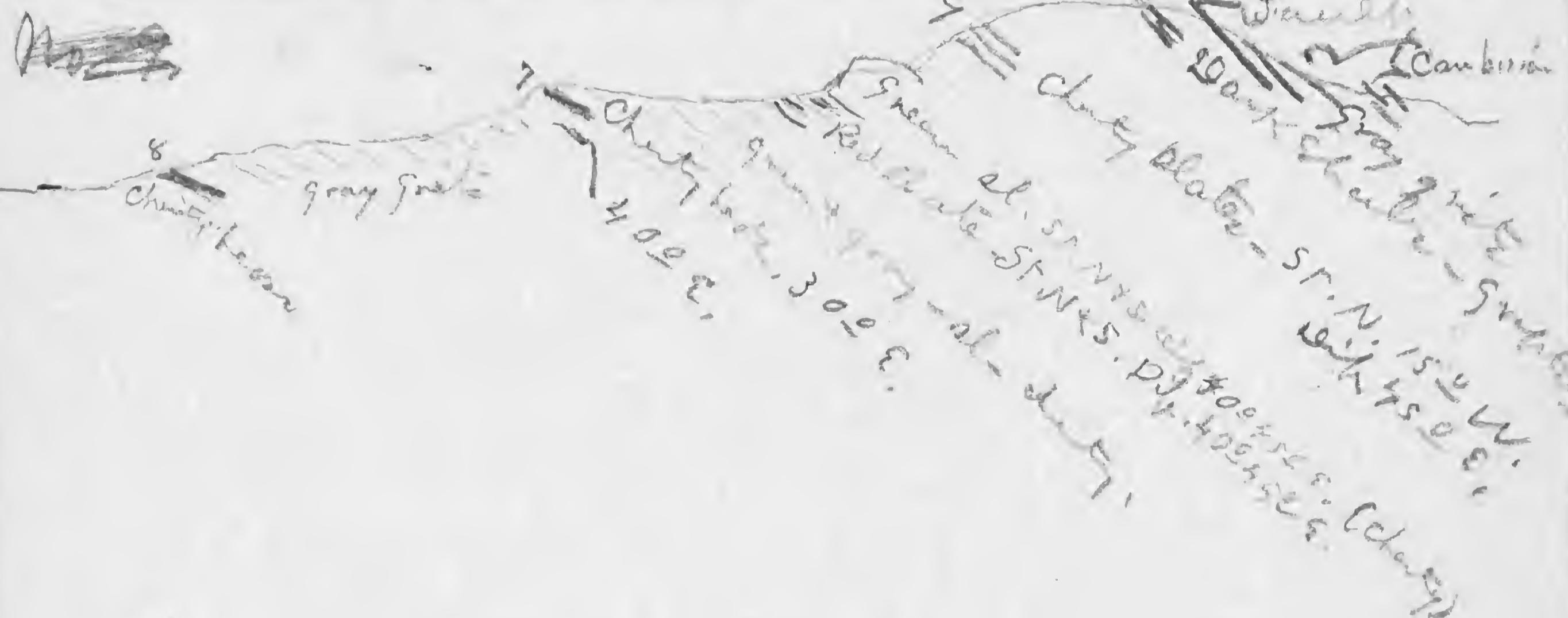
June 6/91.

Dark argl-shale with graptolites.
In pasture east of the farm house of J.
Dodge (the old Moon Barber house), about
300 feet back from the road. Grapt. g.

foot "Brain & gray fine grit;
Chug beds, g.

List -

Section east from Dodge's Home (8)



The graptolite shales are cut off by
a fault just east of 9a

No 9.

June 6/91.

Dark shales interbedded in highly
silicic or cherty slates & greenish
silicic slates - On east crest
or ^{swampy} hill. $\frac{1}{2}$ m. East off J. Dodge house
& $3\frac{1}{4}$ N. of M. Granville N.Y.
Graptolites occur in a narrow
band, a strike of beds N. 15° E.
Alt. 450'.

9a Shales with fragments of graptolites
about 75 feet east of 9. (over)
(Calcareous band)

No 10.

June 6/91.

Cambrian.

About $3\frac{1}{2}$ miles east of J. Dodge
House - & over the crest of the hill
a coarse gray calcareous ^{occa. 11} ft. wide
^{If the} Many ^{narrow} veins of granite & ~~that~~ weather
very irregular & to a reddish brown
rotten rock. It is well exposed
north of the Woods station 9. about
50 to 75 feet higher up a
limestone containing fragments of

Aug 21st collected a
lot of alcyonaria etc.
from this bed. A rich
graptolitic fauna of
California (Painted-Lake)
age

a blue bedded limestone and
fragments of dolomite.

About 150 feet higher

St. Mts. at 550 E.

About 150 feet higher
in the section a thin
bedded limestone contains
Himantocrinus sagittatus van
Laemna, Microdiscus connexus,
Hyolithes mecanus.

Ptychopora, sp. and
a concretionary nodules
dolomite sp? Hyolithes
americanus etc,

No 11 [891] Cambrian Aug. 8th

North side Mettowee valley.
East of R. Granville Bridge
ff. m. South side of road
A thick gritstone with
calcareous argillaceous shales
above. In the latter
naticid fragments of
Absconditus, in decomposed
portions.

On the north-side of the
road further east there is
a less extensive outcrop of
sandstone & greenish shale,
rough, shales. Sand
goes on strike, in the
bed of the Mettowee to the
south.

No 12/1091 Cambria

Aug 8-

1/2 mi N. Southville bridge
Allen road north. The
shale & slate strike N 60°
W. (mag) ^{whitish green} covering the road &
outcrops of limestone occurring
abundantly in the field on
the west side of the
road, across from a farm
house on the east side.
Fragments in bedrock
layers, a few white
beaching developed
Micrasterias punctulata
Alveolina sp. (fragments)
& fragments of Solenites.

Bedded limestone

Cambridge

No 13/1896 Aug 8-

about 1^m N. of No 12, on
summit of hill west
of road, West of house
of P. Ives. Map of Warren Co.
1862. Limestone outcrop
just south of Woods in
pasture. N. 80° W. (mag)
alt., 30 to 30.5.

Found Meristina punctata
fragments of trilobites as
in No 12. Bedded in
in alter.

Marysias.

Aug 21

Brownish or greyish
shaly beds with ~~lenses~~
of ~~shaly~~ conk beds, fine-
grained sandstone that
weathers at high angles
in contrast with the
darker body of the bank.
ledge. To the westward
they sandstone predom.
forms a considerable
portion of the terrace.
This is shown in the N.Y.S.
bulletin of the western
side.

Ordovician

No 154891.

A little south of W.
B. Washburn's house just
N. of the Granville line
in the Gambik of
Whitchall found graphite
in a dark slate beside
the road. See 15 on map
+ specimen. Octagonia
of d. probably California or
pp. York flora. Red slate
to the east.

Cambrian

No 16/91

East branch of road
leading from N. Granville to
Whitehall, just south of
Granville. Tawas Creek.
Limestone cross bed -
Sand fragment of Obolalla -
of? Ayatollah's measure.
Obolalla of?.

In situ

No 17/91 Ord.

Aug. 14 -

On the ravine a few
hundred yards north
of School House No 13, in the
W. W. part of Granville -
Washington Co., Pa., a bedded
limestone occurs below
the cliff of the Little Rock
flaming mouth (or what it
is reported as flaming mouth)
The limestone is very thin
bedded & occurs in slabs
that dip east about 15°.
Up on the hillside to the
west massive bedded
sandstones occur that
decays to a reddish rotten
rock ~~on the~~. In them a
cliff from the hill
side up to across
the road where a narrow
belt of red shale occurs.

No. 181104.

Aug. 17th/21

On the south side of small brook
about $\frac{1}{2}$ mi. W. of road - west of 4. Stevens
farm house $\frac{1}{8}$ mi. east of limestone
ledge. Lenticular masses of
gray limestone enclosed in dark
gray slate at contact containing
Lower Cambrian fossils.

Hyalites americanus, Hyalites
mecans, Micostictus punctatus,
Alveolites (marginalis)

S. East

5 mi. N. of Village of White-
hall, Washn Co. N.Y.

No 19. 1900

Aug 17

Outcrop of Ord. limestone
plan (White) No 18.

Thick & thin bedded black
~~blue~~ limestone. St. N. 40. E.
(mag) dip 20° E. S. E.

Noticed sections of
Calcaratopora - Crinoidal
columns & gas-sheaths
in bed of book. The
limestone are well
shown on the hill to
the north where they
form a long ledge.

Up on the hill side
about 200 yds to the S.E.
the gray slate st. N. 48. E.
dip 20. S. S. and up the
book, a short distance
S. of an old house bay
the contact of the shales
& limestone occurs in the

bed of the book. At this point there is a depositional contact. The argil-shales resting upon & conforming to the uneven surface of the limestone. Some thin beds of blue limestone are interbedded in the shales for a considerable distance above the massive limestone. Siliceous & arenaceous layers also occur higher up & the dip increases. Where the low marshy-thicket ends & the book flats form the open pasture land above the dip increases to 40° & above the fence in the pasture to 55° . Sh. No. 8 -

Dark grayish-green
slates that contain fine

No 19. Cam 8
about 200 yards to the
locality of lower Cam-
bridge Park (No 18).
The bank line lies
between the Ord &
Cam is cut from
from the line between
to open pasture & the
twicket that extends
below along the
brook.

About 5 m'. S. E. of
Whitehall village,
Wash. Co. N.Y.

No. 20, 1891

Aug 17/91

Gray limestone bedded
in slate in lane west
of Lafayette Stevens House
about 100 yds from main
road, S, past Town-
ship whitehall, Washington
Co., N.Y.

In situ

Found Lunaria sanguinalis
var. Tacorum. In situ,
upper zone of Glacial formation.
See collection.
About 5 miles S.E. of Whitehall,

A little ~~the rest~~
on the rest ~~the road~~
~~the road~~ An ~~old~~ slate
bearing shows the
fragments of the ~~old~~
shells + old stones
1866.

No 24/1581.

Brook flowing into
Nettawee ^{river} from the east
about 4 - S.S.E. of Whitehill
village. Fine exposure
of dark silicified argil-
shales in which the
chazy limestones are
imbedded.

Sept 8. 1883

a little to the east
of the east of the road
an old slate quarry
shows the character
of the higher bed.

Koomie farm on much of
186.

Massif (Ord)

Limestone outcrop
South side of road about
4 mi. S.E. of Whitehall
village. A good
place to look for
fossils. Noticed numerous
sections of gobiopodk.

See KE 24.

Cambrian rocks

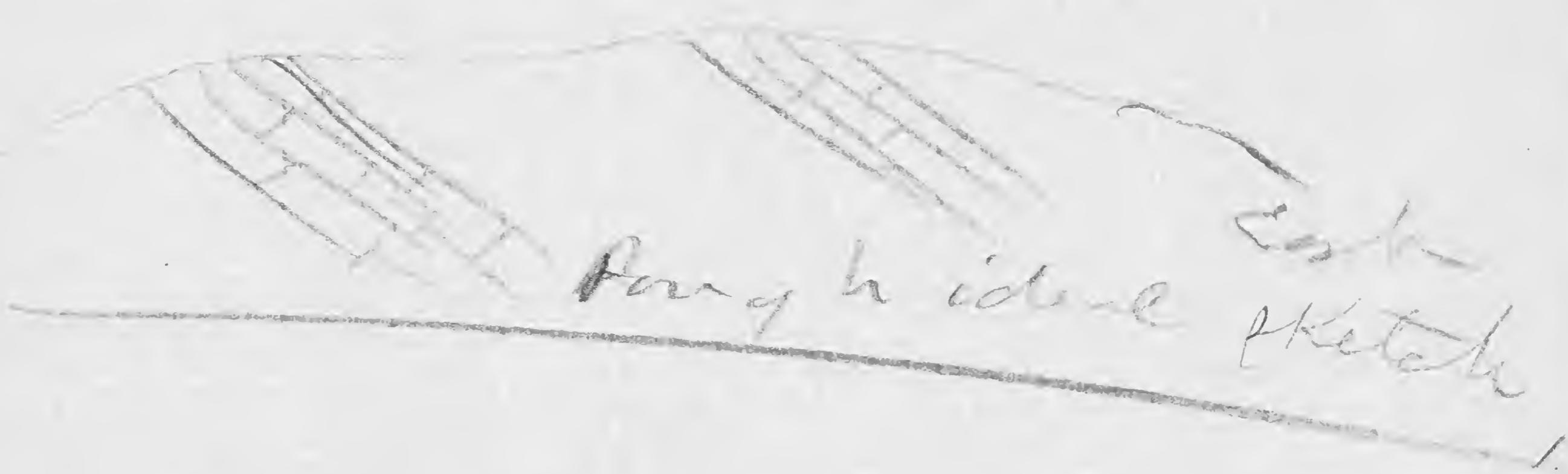
Woshun Co. N.P.

Numerous nodules of limestone & sandstone occur in the slates of the Cambrian of Woshun Co. & the limestone are almost invariably fossiliferous & fragments of fossils occur quite frequently in the sandstone. These nodules vary in size, from $\frac{1}{2}$ to a mile or more in length & lie with thin laminae upon a considerable width of the bedding of the slate. They formed a solid sheet in the soft mud when deposited & thus afforded a resting place for the framework that floated in the surrounding waters.

No 23191

Aug. 18

A good place to see the Ord.
limestone interbedded
in the shales.

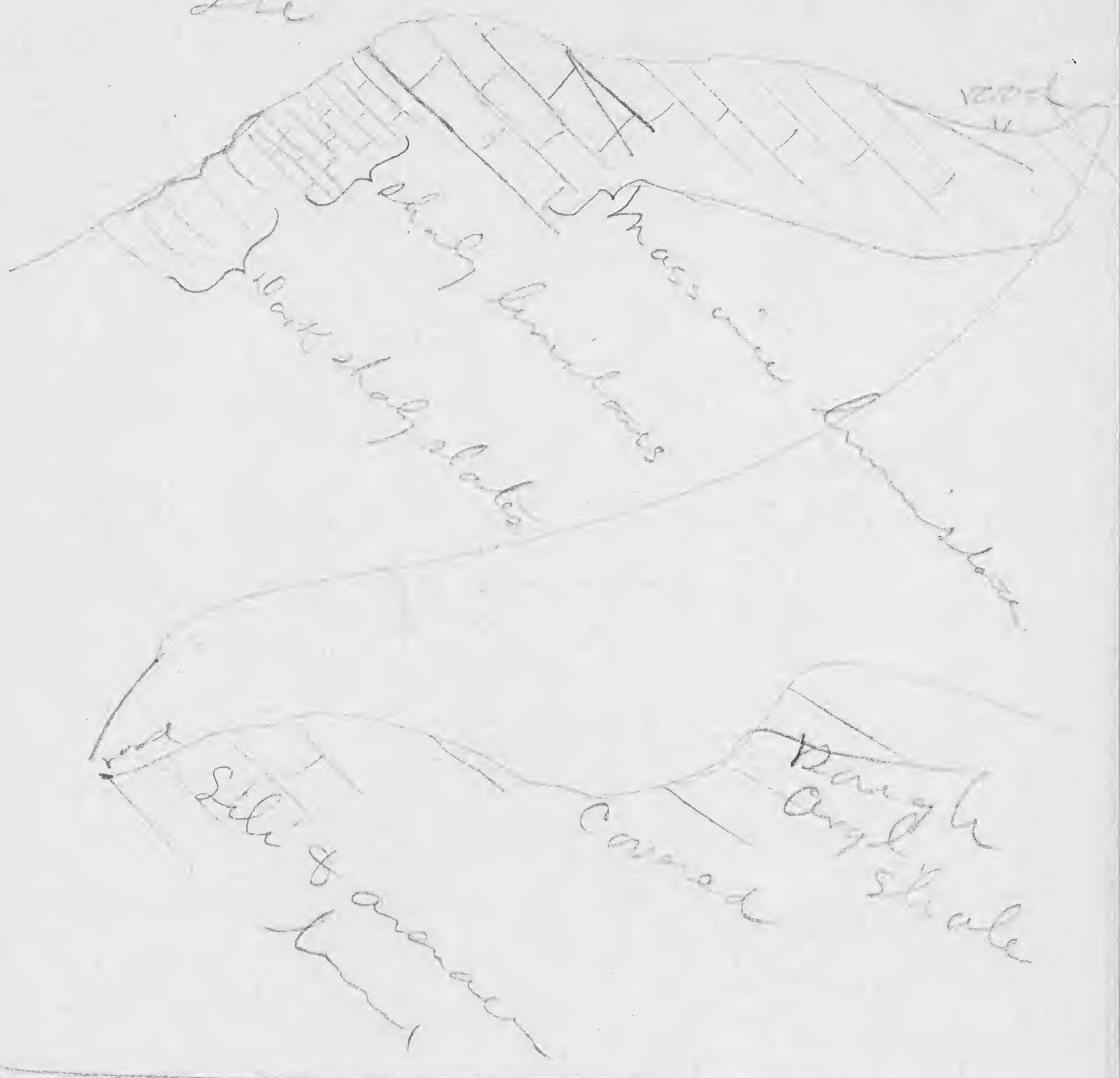


Lanship of Whitehall
Wash. Co. N.Y.

No 2448 -

Aug 10/01

The



Three miles E.S.E. of
Whitewall village. I.W. Ward
farm (1866). Limestone outcrop
south of road, or in above
sketch. Crossed road bedding
south.

At the foot of the hill
west of the road farm house

No 24 (Can)

(2)

The contact of the limestone & subjacent shale is shown.

The limestone series is about 300 feet thick (estimated).

This is a very good section to study the limestone belt. Cabs of brachiopods occur near the western side of the outcrop low down in the section.

Where the exact line of the fault between the Cany & Och rocks is not known except that it occurs in the meadow east of the limestone & first ridge of shales (etc.)